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(54) **DATA BROADCASTING POINT SYSTEM**

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a point up system suitable for data
broadcasting system.

SOLUTION: A receiver 10 comprises a point counting means and a point transfer
meansand the point transfer means transfers the point information of an
audience temporarily stored in the receiver 10 to a customer server 51 to count
the acquired point every audience. The point transfer means detects that the

audience continuously selects the broadcasting station until a second event message is received after the receipt of a first event message or that the audience selects any object determined by a data broadcasting program to add the point value temporarily stored in the receiver 10.

CLAIMS

[Claim(s)]

[Claim 1]After receiving the 1st event message characterized by comprising the following from a broadcasting station that has selected the song to said receiver in a digital-data-transmission system until it receives the 2nd event messageEstablish a point counting means which checks that a televiewer is viewing and listening to a program of the broadcasting stationcalculates the pointand records a point value on said non-volatile storing partand. Point information of a televiewer who added televiewer identification information which read a recorded point value and was read from said IC card to suitable timingforming a point information transfer means to transmit to said customer server through said communication line interface -- a televiewer's point -- a point rise system using digital data transmission which enabled it to calculate.

A broadcasting station which offers data-broadcasting service.

It has a central operation processor which receives data-broadcasting program data transmitted from a nonvolatile memory section which records a televiewer's acquired pointa communication line interfaceand a broadcasting stationinterprets themand generates a data-broadcasting screenA customer server which receives a digital-data-transmission receiver which inserts and uses an IC card which recorded viewer informationand data transmitted from this receiver if needed via a communication line network and which manages a customer database.

[Claim 2]Said point counting means and a point information transfer means of said receiverIt is described as a script in broadcast data of a data-broadcasting

programWhile said broadcast data is received by said receiver and said broadcast data is memorized on a receiverA point rise system by which they used the digital data transmission according to claim 1 which is what functions on a receiver when a central operation processor which said receiver contains interpreted these scripts.

[Claim 3]Said point counting means makes one a flag provided in an address which has a storage area of a receiver when the 1st event message is receivedThenwhen the 2nd event message is receivedrestrict to the time when said whose flag is oneand it is judged that a televiewer was viewing and listening to the program concerned time between two event messagesA point rise system using the digital data transmission according to claim 2 which is what operates so that a point aggregate value currently recorded on a storage area of a receiver may be made to update.

[Claim 4]A point rise system which said point counting means read a numerical value recorded on a private data area included in the 1st or 2nd event messageand used the digital data transmission according to claim 3 which is a thing using this as a coefficient value in the case of point addition calculation.

[Claim 5]A point rise system using the digital data transmission according to claim 2 which is what a receiver receivesand said point counting means detects what a televiewer chose for a certain specific resource defined in broadcast program data currently held inside currentand calculates the point.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the point system using digital-data-transmission service.

[0002]

[Description of the Prior Art]In order that a store etc. may attain a customer's immobilizationthe point system which gives a customer the point according to the purchase amount in a store is widely performed in various industries. These daysthe point system of giving the point is also proposed by replying to the E-mail which received a message through the Internet. In order that a store not only attains a customer's immobilizationbut may heighten the advertisement effect of a commodity maker or a service industry companythe motion that a point system will be used as a means of a potential customer's information gathering is seen.

[0003]

[Problem(s) to be Solved by the Invention]Data-broadcasting service is new broadcast service which makes possible bidirectional handicap NIKESHON between a broadcasting station and a televiewerand has a big possibility as new broadcasting media. Howeverthe point system which utilized this broadcast service does not yet exist. This invention is made in consideration of such a problemand let it be a technical problem to provide a point rise system suitable for data-broadcasting service.

[0004]

[Means for Solving the Problem]Soin the 1st mode of this invention for solving an aforementioned problem. It has a central operation processor which receives data-broadcasting program data transmitted from a broadcasting station which offers data-broadcasting serviceand a nonvolatile memory section which records a televiewer's acquired pointa communication line interface and a broadcasting stationinterprets themand generates a data-broadcasting screenA digital-data-transmission receiver which inserts and uses an IC card which recorded viewer informationIn a digital-data-transmission system constituted including a customer server which receives data transmitted from this receiver if needed via a communication line networkand which manages a customer databaseAfter receiving the 1st event message from a broadcasting station that has selected the song to said receiver until it receives the 2nd event messageEstablish a point counting means which checks that a televiewer is viewing and listening to a

program of the broadcasting stationcalculates the pointand records a point value on said non-volatile storing partand. Point information of a televiewer who added televiewer identification information which read a recorded point value and was read from said IC card to suitable timingBy forming a point information transfer means to transmit to said customer server through said communication line interfacea televiewer's point -- let it be a gist to solve an aforementioned problem by a point rise system using digital data transmission characterized by enabling it to calculate.

[0005]In materializing said point counting means and a point information transfer means of said 1st modethe 2nd mode of this invention said point counting means and a point information transfer meansIt is described as a script in broadcast data of a data-broadcasting programWhile said broadcast data is received by said receiver and said broadcast data is held on a receiverWhen a central operation processor which said receiver contains interprets these scriptsthey are the point rise systems using the digital data transmission according to claim 1 which is what functions on a receiver.

[0006]A broadcast screen of a data-broadcasting program is generated and displayed when a central operation processor which a receiver contains interprets data-broadcasting program data. It not only describes composition and appearance of a screenbut data-broadcasting program data can include description of a procedure of dynamic operation in case the screen is displayed. This is called script.

[0007]The 3rd mode of this invention said point counting meansA flag provided in an address which has a storage area of a receiver when the 1st event message is received is made oneThenwhen the 2nd event message is receivedrestrict to the time when said whose flag is oneand it is judged that a televiewer was viewing and listening to the program concerned time between two event messagesIt is a point rise system using digital data transmission of said 2nd mode that is what operates so that a point aggregate value currently recorded on a storage area of a receiver may be made to update.

[0008]The 4th mode of more desirable this invention said point counting meansIt is the point rise system which read a numerical value recorded on a private data area included in the 1st or 2nd event messageand used digital data transmission of said 3rd mode that is a thing using this as a coefficient value in the case of point addition calculation. Since an event message sent out from a broadcasting station can be used as a private data area where a fixed format is defined and a broadcasting station appoints a certain field arbitrarilyit uses this.

[0009]The 5th mode of this invention said point counting meansIt is a point rise system using digital data transmission of said 2nd mode that is what a receiver receivesdetects what a televiewer chose for a certain specific resource defined in broadcast program data currently held inside currentand calculates the point. As a resultin a certain programwhen the contents transmission button of an applicationa detailed request-for-information buttonetc. on a data-broadcasting screen are chosen with the remote controlit can constitute so that the point may be added.

[0010]

[Embodiment of the Invention]Hereafterthe embodiment of this invention is described using a drawing. Following embodiments are described as a system using data-broadcasting service of BS digital broadcasting by which service will be started in December2000.

[0011]Drawing 1 is a figure explaining the component of a BS-digital-broadcasting system. 60 is a broadcasting station. A broadcasting signal is sent toward the broadcasting satellite 6 from the broadcast antenna 5. A broadcasting satellite is a geostationary satellite in which it is located over southwest (the 110 east longitudesthe degree of north latitude). The broadcasting satellite 6 is turned to the receiving antenna 7wavesand pours it out. 10 is a receiver. A televiewer connects the cable of the receiver 10 to the television monitor 20inserts IC card 30and receives a program. The televiewer can operate the remote control 40and can choose and enjoy the program of a wish. During data-broadcasting receptionthe contents of remote control operation can be told to the customer

center 50 through the upstream 8 and the upstream network 9. An upstream can be used as a channel which tells the request for information and the questionnaire answer from a televieweralthough based also on the program content of a broadcasting station. The customer server 51 which manages the customer database 52 is installed in the customer center 50.

[0012]Before starting explanation of the system 1the broadcasting format of BS-digital-broadcasting service is explained. The broadcasting format adopted by BS digital broadcasting is MPEG 2-systems specified by DVB (Digital Video Broadcasting: the private sector standardization organization aiming at promotion and standardization in Europe of a digital broadcasting systemor its standard). A broadcasting station digitizesmultiplexescarries out and sends out the element (an imagea soundthe data of data broadcasting) which constitutes the program in BS digital broadcasting. These elements serve as TS (transport stream) which is the stream form which bundles some broadcast channels or programs and can receive a receiverand are sent to a receiver.

[0013]TS is typically shown in drawing 3 . The information transmitted by being set to TS can be classified into the following three.

(1) Program (the program itself)

The programs in digital broadcasting are a main line imagea main line sounddata of data broadcastingand ** composition. It is carried out. BML (Broadcast Markup Language) describes the data of data broadcasting. It is carried out. Two or more BML files gather and it becomes data of one data-broadcasting program. . file1file2..fileN show a BML file by drawing 3. Data broadcasting Programs may be contents with another case where they are related contents which synchronized with the main line (what is called the usual television broadcasting) and main line.

(2) He is an intermediary about correspondence of the TS packet group which constitutes a program and this in order for a broadcast directory and a program detailed information receiver to receive the specific program and channel which the televiewer choseand a TS packet and it. The correspondence of a

transponder which carries out ** is needed. Uniquely discriminable event ID is shaken in each programand it is discernment of a programa channel and a channeland a packet. Matching with a number is made. The configuration information on such a program is transmitted by the table information called PSI (Progra m Specific Information). Program Detailed informationsuch as a titlebroadcasting hoursa channeland a program contentis sent in the data format called SI (Service Info rmation).

(3) It is ability ready for receiving only about a specific channel or a specific program to the receiver of information each for limited reception. Information for setting up Channel specific in order to carry out paid broadcasting It is ** only with the receiver (IC card number) which scrambled the specific program and was specified. Viewing-and-listening propriety control information which is information for carrying out **Accounting of paid broadcasting (PPV) For collection of the information viewing-and-listening track record for recording and collecting required viewing-and-listening track records There is information.

[0014]Drawing 5 . is a figure showing the example of a data-broadcasting screen. Drawing 5 . (A) is a screen at the time of drama broadcast. The data-broadcasting portion which comprised a BML file around the indication frame of a drama (main line image) is arranged. (B) shows the time of becoming a commercial video image (henceforth CM). At this timea data-broadcasting portion also serves as another contents. Thusthe data-broadcasting program which changes the contents of data broadcasting synchronizing with a main line image is called interlocking model data broadcast.

[0015]In data broadcastingwhenever a user may set a channelin order to be able to see contentsthe repetition simultaneous multiple address of the data of the data-broadcasting program at that time is carried out. This is called a carousel transmission system. In drawing 3 .even file1-N are one carousels (=1 data-broadcasting program). Drawing 4 . is a figure explaining a carousel transmission system. The square which had the number of 1 to 4 given by a diagram shows the BML file (the file 1..file 4) which forms each screen of one program which

comprises the top screen 1 and the selection pictures 23and 4. While a program content is the samethe simultaneous multiple address of these four files is carried out repeatedly.

[0016]Drawing 2 is a figure explaining the composition of the basic function receiver used by BS digital broadcasting. It tunes in by the tuner part 102 and the demodulation section 103and one TS stream is chosen. The scramble of a broadcasting signal is canceled by the descrambling 104. The specific program of a specific channel is chosen by choosing a desired packet by the TS decoding 105. By MPEG decoder 113a main line image and an audio signal are changed into the signal which the TV monitor 20 receivesand is shown.

[0017]The operating memory 106 is a storage area where cash (temporary storage) of the data broadcasting of the selected channel is carried out. When a channel is changedor when the message which tells that the contents of the data carousel were changed is received from a broadcasting stationa new data carousel is incorporated and it holds here.

[0018]110 receives the signal etc. of the remote control which a televiewer operates which are input/output port. 109 is a modem interface. The area which can use 108 for every broadcasting organization who is nonvolatile memory is decided. The data recorded on nonvolatile memory is held as it iseven if it turns off the receiver 10. 115 is volatile memory. Only while having selected the song in the same channelit is a temporary storage area which can memorize data. If it moves to other officesthe data on the volatile memory 115 will be eliminated. 111 is an IC card interface. The data of IC card 112 on which a televiewer's identification informationpersonal informationetc. were made to record is written. 107 is a central operation processor (following CPU). While CPU107 receives a command of remote control operation etc. from the input/output port 110 and controls the receiver 10at the time of data-broadcasting selection. The BML file by which cash is carried out to the operating memory 106 is read and interpreteddata-broadcasting picture data is constitutedand it writes in the video memory of the graphic controller 114. In this waya data-broadcasting screen is

displayed on the TV monitor 20.

[0019]From a broadcasting stationthe trigger signal of an event message can be sent during program broadcast. An event message is timing with a program and can be used for the purpose of making the display of data-broadcasting contents change etc.

[0020]BML is the description language exclusive-use-ized for the data-broadcasting use on the basis of XML (eXtensible Markup Language). In order to enable expression of dynamic operation on a data-broadcasting screenprocedure can be made to describe in a procedure description language called ECMAScript. ECMAScript is the object-oriented script language which used JavaScript as the base. It has DOM Level1 I/Fin order to operate each object in a document dynamically. DOM (Document ObjectModel) is a model of the document structure specified in order to operate the content structure of an HTML document and an XML document dynamically. It goes into below by considering even this as preparation at explanation of the embodiment of this invention.

[0021]The procedure which will perform event message 1 processing if the event message 1 is received in the BML file of a data-broadcasting program which performs point serviceIf the event message 2 is receivedwill describe the procedure which performs event message 2 processing as a script of a BML fileand at the beginning of a data-broadcasting program. CPU107 is made to interpret the script of those BML filesand a point-coefficients means is performed by changing a receiver into the state of the waiting for those event messages (with time of the event messages 1 and 2 arriving).

[0022]Drawing 8 . is a flow chart explaining operation of the receiver at the time of displaying the data-broadcasting program accompanied by such point counting processing. Firstif the message of a program change is received from a broadcasting stationa receiver will newly carry out cash of the data broadcasting to the operating memory 106 (S10). Nextalthough BML of a data-broadcasting head screen is interpreted and a head screen is displayedin that casethe script of the event message processing 1 described in BML data and the event message

processing 2 is interpretedand it changes into the state of the waiting for an event message (S13). And a data-broadcasting screen like drawing 5 . (A) is displayed. A receiver corresponds to a televiewer's remote control operation henceforth (S16). Howeverwhen the event message 1 or the event message 2 is receivedinterruption processing according to each is performed.

[0023]Drawing 7 . is a flow chart explaining the event message 1 processing (drawing 7 . (A)) and the event message 2 processing (drawing 7 . (B)) which are operation of a point counting means. The event message 1 processing will operateif the event message 1 is receivedand it sets to 1 an address with the volatile memory 115 decided as a flag (S100). And a data-broadcasting screen is changed (S102). As a resultfor examplea data-broadcasting screen like drawing 5 . (B)it is displayed. Event message 2 processing reception of the event message 2 will operate it. Firstit inspects whether a flag is one (S103)and if it is onethe coefficient value of point addition will be acquired from the contents of the event message 2 (S106)and a point value will be updated (S109). The renewal of a point value calculates this acquired point value based on the coefficient value acquired previouslyandin addition to the point value of the origin currently recorded on the area of the broadcasting station of the nonvolatile memory 108 concernedrewrites this. After thata data-broadcasting screen is changed (S111). As a resultfor examplea data-broadcasting screen like original drawing 5 . (A)it returns. the time of a flag being OFF at Step S103 -- a point -- a data-broadcasting screen is changed promptlywithout calculating (S111). Event message 2 processing is ended above.

[0024]It is possible to make only the televiewer who looked at CM from the beginning to the last give the point with the receiver which carried out cash of the data-broadcasting contents containing the script of the point counting means treating the event message processing which operates like drawing 7. As a premiseCM-> drama shall change [the event message 1] in the timing of drama ->CMand the event message 2 shall be sent from a broadcasting station to timing. Drawing 6 . time-chart-izes the example of drawing 5 .and expresses it. Data-

broadcasting contents are also changed synchronizing with a main line image changing with a drama ->CM-> drama.

[0025]When the televiewer has selected the song in the channel concerned from [before the event message 1 arrives] to backward [which the event message 2 reaches]it is clear that the point is calculated by the point-coefficients processing explained by drawing 7 . Nextwhen it returns again before at the original channel rather than it moves to other channels and CM is completed after changing to drama ->CMhow is it? In this casealthough one [the event message processing 1 / a flag]since the value of the flag recorded on the volatile memory 115 by moving from a channel is eliminateda point value is not updatedeven if event message 2 processing is performed after returning to the original channel again. As mentioned abovethe point counting means explained previously can give the point only to the televiewer who looked at CM from the beginning to the last.

[0026]Although it restricts when the televiewer has chosen the same channeland the case where the address of the volatile memory 115 used as a flag also by chance is one before the event message 1 arrives can be consideredinconvenience is not produced even in this case.

[0027]The private data area is secured to the event message. It can be used as area which specifies the coefficient for point addition of this area. (S106 reference)

[0028]Nexta point information transfer means is explained. A receiver carries out cash of the BML data containing the script which described the procedure of point information transfer processingand point information transfer processing which a point information transfer means performs is performed when CPU107 interprets it.

[0029]Drawing 9 . is a flow chart of a point information transfer means. Firstteleviewer identification information is read from IC card 112 through IC card interface 111 (S30)Read the point value of the broadcasting station concerned currently recorded on the nonvolatile memory 108 (S33)double bothand nextvia the modem interface 109Data is transmitted to the customer server 51 currently

installed in the data center which receives the signal of the upstream from a receiver (S36). The destination address may be described in the script which described the procedure of point information transfer processing. The point value of the broadcasting station concerned currently finally recorded on the nonvolatile memory 108 is returned to zero (S39).

[0030]The BML data containing the script which described the procedure of point information transfer processing is included in data of a program which a broadcasting station incorporates on the 1st and a televiewer certainly incorporates into a receiver by 1 time1 time per weekor a certain amount of frequencyand is broadcast.

[0031]In a customer centerif the customer server 51 receives a televiewer's point informationbased on televiewer identification informationan applicable televiewer's point data will be extracted from the customer database 52and this will be updated.

[0032]the time of detecting that a certain specific object defined into the data-broadcasting program was chosen instead of making the operation made to correspond to an event message perform as a modification of a point counting means -- a point -- it is possible to also make it calculate. The component of the document (data-broadcasting screen) described by BML can be operated as an objectwhen BML is provided with DOM Level1 I/F.Those objects are identified by a resource number. Thereforefor examplewhen a televiewer chooses the contents transmission button of an applicationa detailed request-for-information buttonetc. on a data-broadcasting screen with the remote controla point counting means to which the point is added can be operated on a receiver. What is necessary is to describe the procedure which operates such and just to include this script in data-broadcasting picture data.

[0033]In the abovethe point rise system using data-broadcasting service was explained. devising a data-broadcasting program screen by the broadcasting station side -- as the incentive for questionnaire collection of a door bustercollection of program viewing informationetc. -- etc. -- the point rise system

of this invention is utilizable for various uses.

[0034]

[Effect of the Invention]As explained in detail aboveaccording to the structure of a point rise of this inventionthe prominent effect of realizing the point rise system as incentive offer in data-broadcasting service can be done so.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a BS-digital-broadcasting explanatory view.

[Drawing 2]It is a block diagram explaining the composition of a BS-digital-broadcasting receiver.

[Drawing 3]It is an explanatory view of the data format of BS digital broadcasting.

[Drawing 4]It is a figure explaining the transmission system of data broadcasting of BS digital broadcasting.

[Drawing 5]It is an example of a receiving screen of data broadcasting.

[Drawing 6]It is a transition diagram explaining the example of a program configuration of data broadcasting.

[Drawing 7]It is a flow chart explaining operation of point counting processing.

[Drawing 8]It is a flow chart explaining operation of the receiver which displays the data-broadcasting program accompanied by point counting processing.

[Drawing 9]It is a flow chart explaining operation of point information transfer processing.

[Description of Notations]

5 Broadcast antenna

6 Broadcasting satellite

7 Receiving antenna

8 Upstream

9 The network for upstreams

10 Digital broadcasting receiver

20 TV monitor

30 IC card

40 Remote control

50 Customer center

51 Customer server

52 Customer database

60 Broadcasting station

101 Antenna

102 Tuned circuit

103 Demodulator circuit

104 Descramble circuit

105 Transport stream decode circuit

106 Operating memory

107 CPU

108 Nonvolatile memory

109 Modem interface

110 I/O interface

111 IC card interface

112 IC card

113 MPEG decoder

114 Graphic controller

115 Volatile memory